

A1
5. The process of claim 4 wherein the vapor/liquid contacting zone is operated in countercurrent flow wherein vapor flows counter to the downward flowing liquid phase stream.

7. The process of claim 2 wherein the vapor phase stream from the first reaction stage is cooled and the resulting condensed liquid stream is separated from the remaining uncondensed stream, and a portion of the condensed liquid stream is combined with the liquid feed to the second reaction stage.

A2
8. The process of claim 4 wherein the vapor phase stream from the first reaction stage is cooled and the resulting condensed liquid stream is separated from the remaining uncondensed stream, and a portion of the condensed liquid stream is combined with the liquid feed to the second reaction stage.

A3
11. The process of claim 1 wherein the hydrogen-containing treat gas is cascaded from a vapor/liquid contacting zone which is vertically disposed above the second reaction zone.

REMARKS

By way of the present communication applicants have amended the specification by deleting the last paragraph on page 11. This last paragraph was deleted because it referred to an example which is not part of this application.

Applicants have also amended claims 4 and 5 so that they more clearly represent the claimed invention. Claims 7 and 8 have been amended by changing their dependency since claims 6-8 as filed were identical and were all dependent on claim 1.

No new matter has been added by any of these amendments.

Objection to Drawings

The drawing is objected to under 37 CFR 1.83(a) because the Examiner believes that the drawing should show every feature of the invention that is specified in the claims.

It is the Examiner's position that the feature of claim 3 wherein the stripping gas is the vapor phase product from the second reaction stage is not shown in the drawing.

Applicants' respectfully disagree with the Examiner with respect to the requirement to show the process feature of claim 3 in the drawing. The claimed invention relates to a refinery process - not to an apparatus or equipment. Applicant is required under 35 USC 113 to provide a drawing only when necessary for an understanding of the subject matter sought to be patented. The drawing provided with this application is merely a simple box/line schematic drawing for convenience purposes only. The drawing is not presented as a detailed illustration of the claimed invention. The requirement to show every claimed feature in a drawing is a requirement reserved for mechanical and apparatus inventions - not process inventions.

Therefore it is requested that the Examiner reconsider and withdraw this objection.

Objection to Page 11 of Specification

The Examiner also objects to the last paragraph on page 11 of the specification that refers to an example that is not present in the instant application. Applicants have deleted the last paragraph on page 11. Therefore applicants request that this objection also be withdrawn.

Claim 11 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only.

Applicants have amended claim 11 to satisfy this requirement.

REJECTION UNDER 35 U.S.C. 103(A)

Claims 1-10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Haun et al. (US 5,114,562)

Examiner's Position

It is the Examiner's position that Haun et al. teaches a mineral oil conversion process that includes hydrodesulfurization and hydrogenation steps performed in separate

reaction zone. The Examiner states that the subject invention specifically relates to the hydrogenation of distillate petroleum fractions to produce low sulfur content products including diesel and jet fuel and that the feedstock can include virtually any middle distillate. The Examiner lists other features of the claimed invention the states that while Haun et al. differ from the instantly claimed invention in showing a cocurrent flow of hydrogen and hydrocarbons through the reaction zones and a process wherein the stripping gas is the vapor phase product from a second reaction stage, the process of Haun et al is not limited to this manner of operation and that a hydrogen-rich gas may flow countercurrent to the liquid-phase hydrocarbons through one or more reaction zones. The Examiner continues by saying that additionally, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use at least some of the vapor product from the second reaction stage as a stripping gas because Haun et al teach that the stripping gas and vapor phase product are both "hydrogen rich" gases.

Applicants' Position

Haun et al relates to a two stage hydrodesulfurization/hydrogenation process for treating middle distillate feedstocks. Both stages of Haun et al are operated in cocurrent mode. The instantly claimed second stage, the hydrogenation stage, is operated in countercurrent mode. This is important so that up flowing treat gas carries away sulfur impurities before they get a chance to deactivate the sulfur sensitive hydrogenation catalyst. This not suggested in Haun et al.

Also the second stage of Haun et al. needs to be done in two separate vessels with cooling between vessels. See column 7, lines 51-57 of Haun et al.. This is not required in the instantly claimed invention.

For the foregoing reasons applicants request that the Examiner reconsider and withdraw this rejection.

Rejection Under 35 U.S.C. 112

Claims 4-10 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that

applicant regards as the invention. The Examiner believes that claims 4, 5, 9 and 10 are confusing because it is unclear as to what is intended to be encompassed by these claims.

The Examiner believes that claims 6-8 are duplicates of each other.

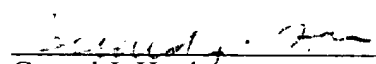
Applicants have amended the claims are previously discussed to satisfy the requirement of 35 U.S.C. 112, second paragraph. Therefore, applicants request that the Examiner withdraw this rejection.

Applicants' attorney notes that other art has been listed as being of interest but has not been cited against the instant claims.

For the foregoing reasons it is applicants' position that the claims, as now presented, define a patentable invention over the cited art. Consequently, applicant requests that the Examiner pass this application to allowance. The Examiner is encouraged to call the undersigned attorney should the Examiner wish to discuss this application.

Respectfully submitted,

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**Marked-up Version of Amended Claims Accompanying Response to First Office
Action for USSN 09/457,434**

4. (Once Amended) The process of claim 3 wherein the stripping gas and liquid phase stream [was] is contacted in a vapor/liquid contacting zone which is vertically disposed above the second reaction zone.

5. (Once Amended) The process of claim 4 wherein the vapor/liquid contacting zone [comprises] is operated in [a] countercurrent flow [contacting zone in which] wherein vapor flows counter to the downward flowing liquid phase stream.

7. (Once Amended) The process of claim [1] 2 wherein the vapor phase stream from the first reaction stage is cooled and the resulting condensed liquid stream is separated from the remaining uncondensed stream, and a portion of the condensed liquid stream is combined with the liquid feed to the second reaction stage.

8. (Once Amended) The process of claim [1] 4 wherein the vapor phase stream from the first reaction stage is cooled and the resulting condensed liquid stream is separated from the remaining uncondensed stream, and a portion of the condensed liquid stream is combined with the liquid feed to the second reaction stage.

11. (Once Amended) The process of claim 1 wherein the hydrogen-containing treat gas is cascaded from [the] a vapor/liquid contacting zone [of claim 4] which is vertically disposed above the second reaction zone.